BISS Biodiversity Information Science and Standards

Biodiversity Information Science and Standards 9: e178513
doi: 10.3897/biss.9.178513

OPEN ACCESS

Conference Abstract

Specimens, Sprints, and Scrum Masters: Project Management at the Museum für Naturkunde Berlin

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Received: 18 Nov 2025 | Published: 19 Nov 2025

Citation: Thorn C, Zimmermann J (2025) Specimens, Sprints, and Scrum Masters: Project Management at the Museum für Naturkunde Berlin. Biodiversity Information Science and Standards 9: e178513.
https://doi.org/10.3897/biss.9.178513

Abstract

At the Museum für Naturkunde Berlin (MfN), the Digital Catalog Infrastructure (DCI) team is experimenting with project management tools that extend beyond their traditional use in the technology sector. The team, comprising developers, data and media managers, and digitization managers, works collaboratively to build and maintain the systems that support the museum's complex digital data landscape. To manage this multifaceted work, the team introduced scrum practices within a workplace not typically structured for agile methodologies. Guided by certified scrum masters, agile principles were adapted to fit the museum context through the use of short iterations, structured meetings, and sprint planning boards designed to organize priorities and improve communication across diverse groups. This work presents the lessons learned from implementing scrum in a museum setting. It highlights what succeeded, challenges encountered, and how the balance between flexibility and structure was maintained to keep the team aligned.

The five pillars of a museum: collecting, preserving, researching, exhibiting, and education (Deutscher Museumsbund e.V. et al. 2023) form the basis of the need for project management at the MfN. Curators, developers, conservators, researchers and many others work together, communicating across different professional languages. Museums are not just about collections, they are a complex ecosystem of people, data,

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and projects, and project management helps connect these moving parts. Museums are also becoming increasingly digital, and museum work is long-term, but often resources are only secured in the short term.

The MfN faced several challenges. Multiple teams of developers carried out complex projects independently with little communication between them. Insight into what projects others were doing was limited, resulting in repeated efforts and delays. Then in 2023, a cyberattack hit MfN's systems and exposed the need for better visibility and coordination among the groups and teams. Following the emergence of a new project requiring collaboration among previously distinct teams for the creation of a digital data catalog, it became clear that a solution was needed to improve collaboration.

The DCI team began by exploring several project management frameworks. It was quickly decided that agile project management might be suitable for the team. Agile project management is an approach that originated in software development and is often used in software teams. Its focus is on flexibility and teamwork to deliver working products (Beck et al. 2001).

Specifically, the team decided to adopt scrum as a structure for its work following several workshops. Scrum is a type of agile project management. It uses short work cycles, called sprints, and involves regular team meetings called stand-ups. It also includes reviews and retrospectives to reflect on completed work and how the team functions. There are a few core positions within the team: product owners (POs), who maintain the backlog of tasks following communication with stakeholders, and scrum masters (SMs), who facilitate meetings and remove barriers to work (Karlesky and Vander Voord 2008). Within the DCI team, scrum masters were responsible for hosting meetings, enabling clear communication, and removing barriers to work. For the DCI team, working with agile and scrum meant working in short, clear cycles following three week sprints, rather than following long, rigid plans and providing the ability to adjust as needed.

Within the process, the DCI team faced the challenge of adapting scrum for a museum context. Key differences between a typical scrum and that in the DCI team are highlighted in *Table 1* below.

The DCI team did not copy scrum exactly but translated and adapted it to make sense for the museum context. Since using scrum, the team's development successes became clearer and there was a notable increase in communication and collaboration among developers. The team gained a shared awareness of projects, both in and outside the team, as information was passed on more freely during daily stand-up meetings. There was quicker coordination when problems arose, and more teamwork and accountability. Structured retrospectives provided opportunities for reflection on team processes and progress.

There were, of course, hurdles along the way: the sudden increase in meetings was overwhelming at first. It took a lot of work to break down the tasks for the backlog. Understanding the timing of these tasks remained an ongoing challenge. There was

agile jargon to become familiar with and a need to establish in-house definitions. As the only team at MfN working agile, the process was not always straightforward. Training sessions for the whole team, led by external trainers, established a common foundation for the project, followed by additional training for POs and SMs. Reflecting on the process, it made sense not to apply the entire scrum framework at once. Methods could be adapted to each institution and tailored to its context, focusing on what the team needed. The DCI team needed greater cohesiveness. Alternatively, if a team needed to quickly produce products, those aspects of agile and scrum could be highlighted.

Table 1.

Comparison between a typical scrum and the DCI team at MfN's scrum.

Typical Scrum	DCI Scrum	Why
1 Product owner (PO), 1 Scrum master (SM)	2x PO, 2x SM	Substitute, other responsibilities in their main roles, different expertise, more connections to stakeholders
PO & SM only hold those roles	POs & SMs also have development tasks	Retains their expertise in the project; full-time positions are not needed at the moment
"Story points" to quantify the size of tasks	No story points	Hard to estimate; too many dependencies in the public sector (e.g. time-consuming procurement applications)
Finishing tasks in one sprint	Unfinished tasks are pushed to next sprint – More fluid sprints	Common dependencies on other departments that are not working agile
Working software over comprehensive documentation	Level 1-3 documentation, Newsletter	Lost documentation after cyberattack; colleagues with temporary contracts - information should be documented and shared to avoid future loss
Fixed 2–4 week sprints	3-week sprints with adjustments	Slow communication outside of team; holiday periods; wanting to retain flexibility

Agile can work anywhere, including a museum. The DCI project at MfN bridges a traditional research-focused workplace with modern development methodologies. The initiative demonstrates that, with thoughtful adaptation, agile methods can bring clarity, focus, and momentum to traditional scientific institutions.

Keywords

agile project management, scrum methodology, biodiversity informatics, digital infrastructure, interdisciplinary collaboration, organisational adaptation

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Presented at

Living Data 2025

Conflicts of interest

The authors have declared that no competing interests exist.

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